UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF PUBLIC ROADS,
WASHINGTON, D. C.

FIELD LETTER No. 5.

June 1, 1915.

DIVISIONS:

DIVISION OF CONSTRUCTION.
V. M. Peirce, Chief.

Projects:

Inspection and Advice.

V. M. Peirce left Washington May 12 to make a general inspection trip of road and other work in Texas, Mississippi, Tennessee, Georgia, South Carolina, and North Carolina. He will return to the Office sometime during the early part of June.

Mr. Peirce desires that all daily reports of work done be made on Form 7, second revision, and that the use of the old form be discontinued.

Object-Lesson Roads.

James C. Wonders, S.H.E., and Charles T. Harrison, S.R.C., are constructing a gravel object-lesson road at Brinkley, Ark. Mr. Harrison is doing the work of construction, while Mr. Wonders made the survey and prepared the plans. Mr. Wonders left Brinkley May 25 for Alma, Ark., to assist the local authorities in building 4-3/4 miles of gravel or macadam road.

J. H. Dodge, S.R.C., is in Vanderburg County, Ind., supervising the construction of an object-lesson sand-clay road about 1000 feet in length.

Special Advice and Inspection.

W. A. Crossland, S.H.E., has been assigned to assist in the construction of 5 miles of road from the Bexar County line to Boerne, Texas, in addition to his regular post road work.

B. H. Burrell, S.H.E., is at Asheville, N. C., supervising the construction of about 6 miles of bituminous macadam road in Buncombe County.

J. H. Eldridge, S.R.C., is supervising some bituminous construction work at Richmond, Va.

H. C. Wells, S.R.C., is at Fort Wayne, Ind., superintending the construction of bituminous macadam and cement-concrete roads in Allen County.

J. H. Dodge, S.R.C., will go from Indiana to Augusta, Me., to cooperate with the State Highway Department in building two sections of sand-clay road, each about $3\frac{1}{2}$ miles in length.

James T. Voshell, S.H.E., conferred with the Selectmen of Franklin County, Mass., at Sunderland with regard to the construction of $2\frac{1}{2}$ miles of gravel road, and with the Town Council of the Town of Barrington, Bristol County, R. I., concerning the best method of maintaining the town roads. He also inspected the Maine Post Road.

B. F. Heidel, S.H.E., will return to Atlanta, Ga., upon completion of assignment, and continue his work of cooperation with State Geologist Dr. S. W. McCallie in locating gravel pits and quarry sites in Georgia to be used for road building purposes.

St. Francisville, La., J. T. Bullen, S.H.E., inspection and advice relative to improving the streets in the Town of St. Francisville, and some county roads leading out from the Town.

Manchester, Tenn., J. A. Whittaker, S.H.E., conferred with Coffee County Road Commissioners and local engineer regarding construction of 29 miles of gravel roads for which $15,000 is available.

State of Kentucky. Senior Highway Engineers Brooks, Whittaker and Toms continue their work of cooperation with the State Highway Commission as Division Engineers. Mr. Brooks, having no other assignment, will devote all of his time to this work in Ballard, Calloway, Carlisle, Fulton, Graves, Hickmen, Livingston, Lyon, Marshall, and McCracken Counties; Mr. Whittaker, with headquarters at Clarksville, Tenn., will spend as much of his time as is not taken up by his post road duties in looking after the State-aid work in Allen, Caldwell, Christian, Hopkins, Logan, Muhlenburg, Simpson, Todd, Trigg, and Warren Counties; Mr. Toms will continue his work in charge of the post road in Bath and Montgomery Counties, headquarters Mt. Sterling, and will give as much of his time as practicable to the State-aid work in Bath, Bourbon, Clark, Fleming, Madison, Menefee, Montgomery, Nicholas, Powell, and Rowan Counties.

County Systems.

Sarasota, Fla., J. W. Janssen, H.E., making a survey and preparing plans and estimates for about 34 miles of roads in Manatee County.

Charlottesville, Va., W. H. Lynch, S.H.E., is cooperating with a representative of the State Highway Commissioner's office regarding a system by which the best administration, construction and maintenance, of the roads of Albemarle County may be obtained.

Post Road Work.

B. F. Heidel, S.H.E., is temporarily at Winston-Salem, N. C., supervising some bituminous construction work on the post road in Forsyth County.

Work is progressing, and assignments remain practically the same, on the other post road projects as in the May letter:
Iowa, Dubuque County: C. H. Sweetser, S.H.E., is in charge, stationed at Dubuque, Iowa, assisted by A. L. Hooper, C.E.S., stationed at Dyersville.
Kentucky, Bath and Montgomery Counties: R. E. Toms, S.H.E., Mt. Sterling, Ky., assisted by R. E. Royall, J.H.E., Sharpsburg, Ky.
Maine, Cumberland County: E. O. Hathaway, S.H.E., is in charge, Yarmouth, Maine, assisted by L. S. Hall, C.E.S.
North Carolina, McDowell County: F. R. Lyons, C.E.S., has been assigned to assist Mr. Rhodes.
South Carolina, Aiken County: E. S. Alderman, who has been assisting Mr. Weir, is at Ocala, Fla., to superintend a bituminous-sand object-lesson road.

Tennessee, Loudon County: M. E. Worrell, H.E.

Texas, Comal, and Hays Counties: W. E. Rosengarten, H.E., New Braunfels, Texas, and R. H. Harrison, J.H.E., San Marcos, Tex., are assigned to take charge of constructing those sections of the post road in Comal and Hays Counties.

Field Experiments.

Mack Galbreath, J.H.E., reported to the Washington Office, May 20, to assist Dr. Hewes in preparing plans for an experimental section on the Russell Road in Alexandria County, Va.

Bridge Work.

O. L. Grover, Bridge Engineer, who is ill with typhoid fever, is improving rapidly and is now able to sit up and receive visitors. O. W. Childs, S.H.E., is in charge of the work during Mr. Grover's absence.

L. W. Erickson, H.B.E., will take annual leave, June 1-7!!

DIVISION OF PHYSICAL TESTS, FIELD EXPERIMENTS AND RURAL ENGINEERING.
E. B. McCormick, Mechanical Engineer.

Projects:

Physical Tests.

The first two weeks in May were largely occupied in arranging and setting up the road material testing machines in the new laboratories on the first floor and in the basement of the Willard Building. Owing to this, reports on road material samples received during this time have been necessarily somewhat delayed. There were received for test, from May 1 to May 27, inclusive, 35 samples of rock, 5 samples of sand, 7 samples of gravel and 3 samples of cement. Owing to the increased facilities offered by the new laboratory, it is hoped to have, hereafter, tests made and reports furnished, especially to field men, in a much shorter time than was possible in the old quarters.

A series of contraction tests on the Ohio Post Road, which were postponed from last month, will be taken by F. H. Jackson, and an assistant, sometime during the month of June.

The Secretary of Agriculture is in receipt of a letter from the Postmaster General relative to the sending by mail of road building materials, which states that: An officer of the Department of Agriculture may send in the mails, under penalty envelopes or labels, to the Department of Agriculture, samples of road building materials, provided they do not exceed twenty pounds in weight when mailed from points beyond the first or second zone from Washington.

Concrete Investigations.

Tests on the second reinforced concrete bridge slab are being continued, but have not yet been completed. This investigation is being prosecuted by E. B. Smith, Associate Mechanical Engineer, who has moved his office to the concrete slab laboratory at the Arlington Experimental Farm.

Traction Tests.

The ruins of the dynamometer wagon which was wrecked at Old Fort, N. C., on April 27, was received at Arlington Siding on May 7. Adjustments have been made with the Southern Railway, and the wagon is being rebuilt at one of the carriage repositories. The dynamometer is being repaired in our own shop and it is hoped that the outfit will be in working condition by July 1.

The recording torsion dynamometer which was built during the winter for the car has been installed and the preliminary results of the same have shown much promise. The spiral spring which is the basis of the design has been found to be of smaller capacity than desired for extreme road conditions and is being replaced by a larger one. In the preliminary work with it some very interesting results have been obtained.

In the transfer to the new quarters in the Willard Building the large testing machine was moved to the Arlington Laboratory and installed in the space occupied as a garage, a temporary garage having been built. The Office space used for the traction work has been given over to the men assigned to the concrete investigations and the traction work moved to quarters on the third floor of the Willard Building.

The computation of the Ames work has been completed and is being put into shape for a bulletin. The results show in some cases more marked improvement than that promised in the April news letter. H. P. Mulford has been taken on as Student Assistant in this work.

Rural Engineering.

Farm Structures:

M. C. Betts, Assistant Architect, is making a brief survey of rural housing conditions in Louisiana and Mississippi. W. Ashby, Barn Architect, is making a further study of barns in the wheat belt of Kansas. W. R. Humphries is in the same state continuing his studies of the grouping of farm buildings. The three men will return to Washington about June 1.

Architectural assistance has been given the Division of Road Economics in the design of a portable building unit for a road construction camp. The working drawings are now in the hands of the modeler who will build the unit in miniature.

Problems Involving Mechanical Principles:

The organization of this branch of the division has been commenced. A. M. Daniels, Assistant Mechanical Engineer, is assisting Mr. McCormick in outlining and systematizing the handling of the many and varied requests for information. An outline of the scope of the subjects which it is the intention to develop and supply information upon has been prepared. The main subdivisions are electricity, farm mechanics, heating plants, lighting plants, plumbing systems, prime movers, refrigeration, sewage disposal, structures, ventilation, and water supply systems. Detailed outlines of the different subjects are being prepared for the systematic collection of data and study of problems with the ultimate idea of bulletin publication. Requests for information along the lines of water power development, sewage disposal, electric lighting plants, heating plants, water supply systems, refrigeration, structures, etc., have received attention.

DIVISION OF ROAD MAINTENANCE.
E. W. James, Chief.

Projects:

Representative State Systems.

With the opening of the road season in the north, it is expected to continue the studies of road maintenance methods in such representative states as New Hampshire, Maine, Massachusetts, and New York, which were started late last year.

Representative County Systems.

Work on a system of county maintenance control, having for its basis a county road map and a simple system of road accounts, is now being undertaken.

Post Road Maintenance.

The construction of higher toad types on some post roads is to be followed wherever possible by a cooperative arrangement with the local authorities, which will provide accurate cost data and maintenance records in connection with these roads.

Work has already been done on the Ohio Post Road, which is of concrete, and with the opening season arrangements will be made covering the maintenance of the Maine Post Road eastward from Portland, and probably for the surface treatment and entire supervision of the maintenance of the Maryland Post Road in Montgomery County. This latter road is practically a continuation of the Rockville Pike, and together with the Conduit Road will form a thirty-mile loop north of Washington, D. C. This will provide conditions of traffic and maintenance of unusual value for demonstration purposes.

Washington-Atlanta Highway.

On Mr. Winslow's section extending from the Nottaway River, Va., south to Fayetteville, North Carolina, applications for maintenance have been received in all but Johnston County, whose current application does not expire until June 22, 1915.

Mecklenburg County, Va., increased its allotment about 127 per cent over last year.

On May 4 Cheraw Township, Chesterfield County, S. C., voted a bond issue of $40,000, part of which will be devoted toward the construction of the Washington-Atlanta Highway through that district.

Field Experiments.

Materials for retreating section 1 and approximately one-half of section 2 of the Rockville Pike with refined coal tar, hot application, and 5/8-inch washed gravel are being delivered. The treatment will probably be made during the first week in June.

Arrangements have been completed and materials ordered to retreat, in cooperation with the Chemistry Division, section 7 of the Rockville Pike, using the same materials as in the original treatment - asphaltic petroleum with torpedo-sand top dressing.

An inspection and estimate has been made of the Vienna-Fairfax Road in Fairfax County, Virginia, for the resurfacing and surface treatment of that road. The Road Board of the Providence District has asked for an engineer to superintend the resurfacing work.

New Projects.

A project to inaugurate demonstration maintenance in Hernando, Pasco, Pinellas, and Lee Counties, Florida, has been approved by the Director, and the necessary steps will be taken to effect arrangements with the county officials whereby the road from Brooksville, Hernando County, to St. Petersburg, Pinellas County, will be placed under experimental maintenance under the supervision of this Office, and also the road known as McGregor Boulevard from Fort Myers to Punta Rassa, Lee County, Florida. This boulevard was commenced under the supervision of this Office, and J. R. Shidler, and H. S. Fairbank, Highway Engineers, assigned May 4, 1912. It consists of dredged shell, water-bound, and surface treated with an asphaltic petroleum similar to that used on section 3 of the Rockville Pike.

The roads in Hernando, Pasco, and Pinellas Counties are continuous and furnish experimental sections of sand-clay, Florida marls, water-bound limestone, bituminous macadam of local soft limestone by penetration method, brick, shell, and oiled marls.

DIVISION OF NATIONAL PARK AND FOREST ROADS.
T. Warren Allen, Chief.

Projects:

The Office has received no reports from Mr. Allen concerning the especial progress of the different projects under him, for the past month.

Mr. Allen is on an extensive western trip, inspecting the work done and to be carried out in the various parks and forests. The specifications for the Sequoia and Yosemite Roads have been submitted to the Interior Department, and those for Glacier Park are being prepared for submission.

DIVISION OF CHEMISTRY.
C. S. Reeve, Chemist.

Projects:

The work of this division has been practically at a standstill owing to the dismantling of the laboratory and its reconstruction in the new building. A few of the most urgent routine samples have been cared for as circumstances permitted.

Experimental Bituminous Road Construction and Maintenance.

Plans have been completed in cooperation with the Division of Maintenance for a second surface treatment of experiments No. 1 and No. 7 on the Rockville Pike.

Mr. Adderton is at Ocala, Florida, cooperating with Mr. Alderman in the construction of a mixed bituminous-sand section and an oil-limestone section to be built by the penetration method.

Mr. Reeve made a short trip to Amherst, Va., for the purpose of inspecting some defective bituminous construction.

DIVISION OF ACCOUNTS AND PROPERTY.
W. Carl Wyatt, In Charge.

The requirement that project reports accompany expense accounts is not being complied with in many cases and it is necessary to ask repeatedly for the project reports, the accounts being delayed until the project reports are received. Project reports have not accompanied expense accounts for a portion of the month, the employee holding the same and sending it in at the end of the month. This practice hinders the handling of the expense accounts and in future if an expense account is submitted for the first ten days of a month a project report covering the same period should accompany it, and in like manner if a second expense account is rendered during the same month a second project report covering the period covered by the second expense account should accompany same. In other words, there is no objection if three or four project reports are submitted during the same month, the only requirement being that they shall, when assembled, cover the entire month. This, of course, applies only to employees who are traveling in and out of Washington and are permitted to submit expense accounts at the end of each trip. The employee who is regularly in the field can submit but one expense account a month and his project report must accompany it before it can be passed for payment.

Salary vouchers may be sent in for payment about the twenty-fifth of the month as heretofore, provided a note is attached thereto indicating the project or projects upon which the employee has been engaged during the month, and the inclusive dates, with total number of days employed upon each project.

Requesting Field Supplies.

Field men having occasion to request supplies from this Office are requested to exercise more care and judgment than has been evidenced in the past.

Form 56-M (Request for Supplies) has been provided for this purpose and its intelligent use will greatly reduce the work in this Office and insure the prompt issuance of the article desired. In each case the exact quantity, name of article and, where necessary, a comprehensive description of the article desired should be given. Most of the supplies are to be had in several different grades and the property clerk is not familiar enough with the individual requirements to decide on the grade desired. Ordinary writing pencils, for instance, are to be had in hard, medium, and soft leads, and, in the absence of the trade name of the pencil, the degree of hardness should be shown. Requests, such as have been received, reading "a supply" or "some pencils" are obviously too vague to be filled satisfactorily, either for the good of the service or the requirements of the party making the request.

It has also been noticed that the quantity of supplies requested are frequently greatly out of proportion to the requirements of the service, resulting in waste and unnecessary expense. Aside from this objectionable feature, the amount of stock carried on hand is based upon actual requirement and over-issue to some must necessarily result in shortage for others. It will, therefore, be expected that future requests be based upon a careful and economical estimate of each individual requirement. Such cooperation on the part of field men should greatly increase the efficiency of this branch of the work and result in greater satisfaction to all concerned.

DIVISION OF ROAD ECONOMICS.
J. E. Pennybacker, Chief.

Projects:

General Statistical and Research Investigations.

Reports have been received from all State highway departments except California, showing expenditures of State funds classified according to construction, maintenance, general engineering, and administration, together with data as to road mileage, etc. A table has been prepared and a copy sent to each State to be checked and returned, after which a final copy will be made and issued as a Circular of the Office of the Secretary.

Model Convict Camp.

The preliminary work on the convict labor project has progressed to the point where miniature models of the unit structures for bunk houses, mess hall, kitchen, etc., are being made. The preparation of forms for record and report are practically complete, and suggested dietary tables for the proposed camp have been prepared by W. F. Draper, Passed Asst. Surgeon of the U. S. Public Health Service..

Economic Study of Highway Systems.

E. H. Barber, H. E., who has been conducting this work, is continuing his work with the State Highway Department of Kentucky, assisting in its organization and in the installation of a system of reporting and record. His address is Frankfort, Ky.

Railroad Freight Rates on Road Materials.

A chart has been prepared showing the maximum, minimum, and average freight rates charged by railroads for road materials, based upon returns from 96 railroads. The chart shows by curves the operation of these rates, and the suggested rate, and indicates on the basis of an estimated cost of $7000 per mile for macadam, and $3000 per mile for gravel roads, what percentage of the total cost of the road will be represented by the freight charges where all the material is hauled by rail. All available information as to laws affedting railroad rates, the rulings of the Interstate Commerce Commission, and the policies announced by railroads, is being compiled, and later on conferences will be held with railroad officials in all parts of the country, with a view to securing equitable rates more or less uniform in character, that will aid in the development of road building.

Lectures and Demonstration of Road and Bridge Models.

G. D. Marshall, S.R.C., was detached for a week from the college extension work in Texas, and assigned to address the State good roads meeting in Tucson, and to advise with the State Highway Engineer of Phoenix on some State road surfacing problems.

J. E. Pennybacker, Chief, R. E., will be at Jackson, Miss., June 10 and 11, to address the State Highway Association and confer with the Governor and others with a view to preparing a State-aid bill for Mississippi.

J. J. Tobin, A.R.E., lectured at Portland, Ind., on May 19. He will go to Independence, Kansas, June 7 and 8, to address the Annual Convention of the Ozark Trails Association.

L. E. Boykin, A.R.E., lectured before the meeting of the Chester County Farm Bureau, Westchester, Pa., on the 22nd.

The models which were sent to Harrison, Ark., for the Annual Convention of the State Press Association, May 17-19, will be retained for an indefinite period, on exhibition, under the charge of Mr. Francis Keefer, Forest Supervisor. The models at Montgomery, Ala., are still on exhibition. A set of models was shipped to Portland, Me., on the 21st of May, to be exhibited at the Maine State Exposition, under the charge of the Portland Chamber of Commerce. A. S. Brainard, S.H.E., will be in charge of the exhibit, which will be held June 7 to 12.

Library.

Recently the Library acquired from various State Boards of Health, agricultural experiment stations, and engineering divisions of certain agricultural colleges copies of bulletins published by them concerning their investigations relating to rural sanitation and particularly sewage and water disposal. These are being used by the Division of Rural Engineering in their investigations of those subjects.

The Library has received latest annual reports of all State highway commissions except the following, New York, Massachusetts, Connecticut, Illinois, New Mexico, Ohio, Maryland, and Utah.

Since the enlargement of the Office a number of new books relating to drainage and irrigation have been added, the most important being:

Willcocks, Sir. W. and J. I. Craig, Egyption Irrigation.
Bellasis, E. S., Hydraulics with Working Tables.
Moritz, E. A., Working Data for Irrigation Engineers.
Considere, Armand, Experimental Researches on Reinforced Concrete. (translation)
Newell and Murphy, Principles of Irrigation Engineering.
Church, Irving P., Hydraulic Motors.
Hazen, Allen, The Filtration of Public Water Supplies.

Other important accessions to the Library are:
Good Roads Yearbook, 1915, American Highway Association.
Report of New York Department of Efficiency and Economy, concerning matters relating to the construction and maintenance of public highways, presented by one of the authors, Mr. Prevost Hubbard.
Street Paving and Maintenance in European Cities, by H. W. Durham, formerly Chief Engineer of the Bureau of Highways, Borough of Manhattan, New York City.
Automobile Blue Books for 1915, donated by the publishers.
Estimating the Cost of Work, by Wm. B. Ferguson.

Publications.

The new bulletin on Road Models will be issued June 7. The bulletins on Portland Cement Pavements, Vitrified Brick Pavements, Oil-Mixed Cement Concrete, and the new Progress Report, and the Yearbook, together with our Separate from it on State Management, will all be issued within the next month or six weeks.

DIVISION OF IRRIGATION INVESTIGATIONS.
Samuel Fortier, Chief.

Projects:

Supervision.

Samuel Fortier, Chief of the Division, returned from his Canadian trip Monday, May 24. Mr. Fortier will leave during June on his inspection tour of the field and expects to be away from the Office during the greater part of the summer on this work.

Utilization of Water.

Field work under this project is proceeding as follows: Studies in duty of water in Arizona are being conducted by P. E. Fuller, I.E.* at Higley and other points in Salt River Valley. These studies include several features differing from those characterizing similar work elsewhere, the principal one of which is the sub-division of tracts into small plats of definite slope, the problem being to determine the proper heads of water to be used on land having these slopes.

The work in Montana has been resumed by F. G. Harden, I.E., who has as his assistants two temporary employees secured from the Civil Service register, Asbury White, Jr., and Jos. F. Kunesh. The investigations in Montana have to do with the proper quantity of water to apply, and proper methods of application to secure and maintain the most favorable soil moisture conditions and avoid loss by deep percolation. The Montana Experiment Station, which is cooperating in the studies at Billings, has recently published a report submitted by S. T. Harding, I.E., on Irrigation Development in Montana, which includes considerable data from the experiments conducted under his direction in 1913 and 1914. This is Montana Station Bulletin No. 103.

Similar studies at Mercedes, Texas, are being made by W. L. Rockwell, I.M.*** and his assistant, Paul S. Jones, A.I.E.** Experiments begun in previous seasons in Nevada will be continued by C. G. Haskell, who has completed his work in the rice states. The work in Imperial Valley, California, under C. E. Tait, I.E., and his assistant F. J. Veihmeyer, A.I.E., includes experiments on seven fields of 20 acres or more of different types of soil, one of these fields including the University Experiment sStation at Melowland. R. D. Robertson, I.E., is conducting duty of water studies in Sacramento Valley, these having to do principally with measurement of quantities of water used.

E. A. Beck, A.**** who has been in charge of the Twin Falls, Idaho, Experiment Station, has submitted a detailed progress report of the first year's work. The experiments will continue for several seasons before conclusive results may be expected.

The State Legislature of Utah failed to make the usual provision for cooperation between the Experiment Station and the Irrigation Division for the next fiscal year, but it is expected that the work will continue under the direction of L. M. Winsor, A., since other funds of the Experiment Station are available.

Work in Wyoming is temporarily delayed on account of unfavorable weather conditions and cooperative arrangements with the State authorities are still pending. J. T. Kingdon, I. E., in charge.

*Irrigation Engineer.
**Assistant Irrigation Engineer.
***Irrigation Manager.
****Agent.

H. C. Diesem, I. E., who is in charge of a special investigation of the effect of storage of water in the Pathfinder reservoir upon underflow of the Platte River in Nebraska, has submitted data covering readings on several lines of wells established in the valley last year to ascertain heights of underground water levels. Wells at Kearney indicate that while the readings for 1915 are higher than those for 1914, readings on wells south of the river are also higher than readings obtained from the same wells in a similar investigation in 1896; but the readings from the wells north of the river are lower than those of the previous date. The higher readings for 1915 over those of 1914 are partly accounted for by the unusual precipitation in the valley during the present spring. This investigation will continue until definite conclusions can be drawn as to the effedt of storage on the underflow of the river.

R. B. Sleight, A.I.E., has recently submitted a report which he prepared under the direction of F. L. Bixby, I.E., on the results of duty of water studies in New Mexico during several seasons.

Duty of water investigations have been instituted in Eastern Oregon in cooperation with the State Engineer and the State Agricultural College. Two agents have been employed, one stationed at Paisley, and the other at Haines.

Pumping for Irrigation.

Professor B. P. Fleming of the University of Iowa, who was employed during the season of 1914 on a series of tests of pumping plants in the Snake River Valley of Idaho, has submitted his report on these investigations. The report brings out the low efficiency of small pumping plants, and calls attention to prevailing causes for this, which are chiefly the use of pumps under conditions for which they were not designed, poor transmission and large losses from entrance head.

F. L. Bixby, I.E., has submitted a report on a series of tests conducted on a well-known make of centrifugal pumps in the laboratory at the New Mexico Agricultural College. The laboratory has recently been equipped with apparatus to permit determinations of power input, static and friction heads and water pumped, and the tests will be continued.

Thirty-five collaborators at small monthly salaries have recently been appointed to collect information on costs of operating pumping plants in Nebraska. These employees are owners or operators of plants and have been instructed to keep daily records of fuel consumed, lubricating oils used, cost of repairs and attendance, time plants are run and the lands on which pumped water is used. This work is being carried on under H. C. Diesem, I.E., Mr. LeRoy Rhodes, a member of the faculty of the University of Nebraska, with which the Division is cooperating in these studies, has been employed to assist Mr. Diesem for the summer.

Cooperative investigations have been proposed by the University of Nevada which, if undertaken, will include the keeping of similar records to those being collected in Nebraska, but will cover principally plants operated by the University under a special appropriation made by the legislature for pumping investigations.

A portable pumping plant has recently been purchased by the Office for the purpose of testing capacities of wells and other sources of supply used in irrigation in the humid states. This will be used in connection with the investigations being carried on by M. B. Williams and F. W. Stanley.

The cooperative investigations in Utah include the installation and operation of experimental pumping plants and the keeping of cost data.

Appliances and Equipment.

Pending the opening of the investigations in Wyoming on the utilization of water, J. T. Kingdon, I.E., is completing his report on chutes and drops used in irrigation canals, the field work for which was conducted during the season of 1914.

F. C. Scobey, I.E., is engaged in a brief investigation of the capacity of terra cotta pipe used in irrigation in the Eastern States. The field work for this is being conducted near Portsmouth, Virginia, where this pipe is being used on an extensive scale. Mr. Scobey is assisted in this work by F. W. Stanley, I. E.

Mr. Stanley's work, as well as that of Mr. Williams is demanding more and more attention to problems of this sort as the extension of irrigation in the Eastern States is growing rapidly on account of unseasonable droughts of the present spring and recent seasons.

Flow of Water.

Department Bulletin 194, by F. C. Scobey, I.E., on the Flow of Water in Irrigation Channels, is being distributed. This report discusses results of field work conducted in 1913. Mr. Scobey's work this summer will be concerned with the flow of water in concrete pipes. A portion of the investigation will be made in cooperation with the U. S. Reclamation Service.

Measurement of Water.

Testing experiments are now being conducted in the hydraulic laboratory, Fort Collins, Colorado, on a new type of measuring flume which does not require so much fall as weirs commonly used. This device is consequently adapted to a wider range of conditions. Experiments are to be conducted in the laboratory in cooperation with the U. S. Reclamation Service for the purpose of developing devices adapted to measuring water to consumers on these projects.

The University of California has recently issued its bulletin No. 247, Some Measuring Devices Used in the Delivery of Irrigation Water, which was prepared by agents of Irrigation Investigations in the California field and is based on tests of apparatus installed at the Davis farm. Tests are now being conducted at Davis under the direction of Frank Adams, I.M., on the Venturi meter, these being under field conditions. This type of meter is being tested at the laboratory at Fort Collins.

Regulations, Customs, and Laws.

Two sub-projects have recently been approved to permit studies of limitations on irrigation practice and the financing of irrigation enterprises. The first named work contemplates the investigation of ditch regulations, contracts, and laws, and will be followed by a field study to determine the extent to which these limitations control the irrigation practice of farmers and prevent them from adopting improvements. The other project contemplates the collection of information on existing laws and schemes for financing enterprises, together with a study of their efficiency. This will be an extension of the studies already made of irrigation districts and Carey Act projects.

DIVISION OF DRAINAGE INVESTIGATIONS.
S. H. McCrory, Chief.

Projects:

Administration.

S. H. McCrory, Chief of Drainage Investigations, visited a number of points in the southeastern States and lower Mississippi Valley, between May 5 and May 21. He inspected the Panther Creek Drainage District near Owensboro, Ky., in company with the local engineer and drainage commissioners. He conferred with Fred F. Shafer, and the local engineer, relative to the survey of Mayfield Creek Drainage District, at Blandville, Ky. He addressed the Georgia Drainage Congress, held at Albany, Ga., May 12 and 13. In company with J. V. Phillips, D.E.,* he inspected the Martha Berry School farm near Rome, Ga., and the Sixth District A. & M. College farm near Barnesville, Ga., where tile drains have been installed after plans were made by this division. At New Orleans on May 18 he conferred with a representative of the Texas A. &. M. College with respect to cooperative drainage work in that State. In company with Chas. W. Okey, D.E., he inspected pumping plant No. 2 at New Orleans, where the pumps are of the screw type 12 feet in diameter. He conferred also with Lewis A. Jones, D.E., at Montgomery, Ala., and with O. G. Baxter, D.E., at Little Rock, Ark.

H. A. Kipp, D.E., has resigned effective May 26, to enter private engineering practice, with headquarters at Houston, Tex. The Houston Office of Drainage Investigations has been closed.

The Office of Drainage Investigations at Richmond, Va., has been discontinued. D. L. Yarnell, D.E., will conduct the work in Virginia and West Virginia from Washington, D. C.

Farm Drainage.

Reports Transmitted:

D-10 Clark Farm, Newton Co., Ga. - tile drains planned by J. V. Phillips, D.E., Philpot, Ky.

D-10 Harris Farm, Hancock, Co., Ga. - tile drains planned by J. V. Phillips, D.E.

D-32 Garten Verein Property, Galveston, Tex. - local engineer's plan for tile drains, revised by H. A. Kipp, D.E., Houston, Tex.

D-32-L Experiment Sub-Station No. 3, Angleton, Tex.- by H. A. Kipp, D. C.

*Drainage Engineer.

Reports Received:

D-5 Noch Farm, Md. - by J. R. Haswell, D.E., 319 Custom House, Baltimore, Md.

D-8-X McCrary Farm, Randolph Co., N. C. - by H. M. Lynde, D.E., Agricultural Building, Raleigh, N. C.

D-8-X Ramsaur Farm, Bladen Co., N. C. - by F. R. Baker, A.D.E.* (N.C.Dept. Agr.) Agricultural Building, Raleigh, N. C.

D-29-U Page-Hart Farm, Jackson Co., Ark. - by O. G. Baxter, D.E., 530 Southern Trust Bldg., Little Rock, Ark.

Overflowed Lands.

Reports Received:

D-8-X Second Broad River and Tributaries, Rutherford Co., N. C.,- by H. M. Lynde, D.E.

D-9 Gills Creek, Abbeville Co., S. C., by F. G. Eason, D.E., Post Office Building, Charleston, S. C.

D-27 Quiver River Drainage District, Tallahatchie, Le Flore and Sunflower Counties, Mississippi. - by O. G. Baxter, D.E., 530 Southern Trust Building, Little Rock, Ark.

Progress of Work: Progress of Wrok.

The survey of the Kootenai River Valley in Idaho has been completed. Lewis A. Jones, D.E., has returned to his headquarters at Montgomery, Ala., (P.O. Box 532), and W. A. Kelly, D.E., has returned to North Yakima, Wash. (310 Federal Building)

J. V. Phillips, D.E., has begun a survey of the Panther Creek Drainage District, in Daviess Co., Ky., with headquarters at Philpot, Ky.

Fred. F. Shafer, D.E., Blandville, Ky., has begun location work on the Mayfield Creek project.

Swamp Lands.

Reports Received:

D-9 Abandoned Rice Lands, Colleton Co., S.C. - An inspection by Chas. W. Okey, D.E., Houma, La., made in company with representatives of the Bureau of Soils and Bureau of Plant Industry, this Department, to determine methods of putting these lands into profitable cultivation.

D-32-K Drainage Districts in Coastal Plain of Texas - inspection by H. A. Kipp, D.E., Houston, Texas.

Irrigated Lands.

Reports Transmitted:

D-36-I Pearcy Tract, Canon City, Colorado - underdrains planned for seeped land by Louie T. Jessup, A.D.E., Schiesswohl Building, Grand Junction, Colo.

D-36-I Vawter Tract, Canon City, Colorado - underdrains planned for seeped land, by Louie T. Jessup, A.D.E.

Reports Received:

D-32-A Jungren Farm, San Benito, Texas - by W. N. Hall, D.E., Brownsville, Texas.

D-36-A Carmel Drainage District, San Luis Valley, Colorado, by D. G. Miller, D.E., Washington, D. C.

*Assistant Drainage Engineer.

Reports Received: (continued)

D-36-B Dewey Tract, Fruita, Colorado, by Louie T. Jessup, A.D.E.
D-36-B Carman Tract, Grand Junction, Colorado, by Louie T. Jessup, A.D.E.
D-36-I Bingham Tract, Canon City, Colorado, by Louie T. Jessup, A.D.E.
D-36-I Drainage of Shale Lands, Canon City, Colo., by Lewie T. Jessup, A.D.E.
D-36-I Gibson Tract, Canon City, Colo., by Louie T. Jessup, A.D.E.
D-36-I Rogers Tract, Canon City, Colo., by Louie T. Jessup, A.D.E.
D-36-I Vineland Irrigation District, Vineland, Colo., by Louie T. Jessup, A.D.E.
D-43 Thomas Tract, Santa Clara County, Cal., by W. W. Weir, D.E., 17 Budd Hall, Berkeley, California.

Technical Investigations.

J. R. Haswell, D.E., inspected cement tile factories in Ohio, for selecting tile to be used in the experiments upon flow in drain tile that S. W. Frescoln, D.E., will make at Arlington, Va.

Chas. E. Ramser, A.D.E., Bonner's Ferry, Idaho, will make records of river stages and gagings of flow during the flood period of May and June on the Kootenai River.

A. D. Morehouse, D.E., has completed his measurements of run-off in the Back and Jacob Swamps Drainage District, near Lumberton, N. C., and has returned to Washington, D. C.

PERSONNEL OF THE
OFFICE OF PUBLIC ROADS AND RURAL ENGINEERING
(515 Fourteenth Street, N. W.)
as of July 1, 1915.

L. W. Page, Director,
P. St. J. Wilson, Assistant Director.

Name	Division	Position	Location
Adams, Frank	I.I.	Irrigation Manager	Field
Ainsworth, T. L.	OPR	Engineering Draftsman	Room 604
Alderman, E.S.	"	Junior Highway Engineer	Field
Allen, T. Warren	"	Chief of National Park and Forest Roads	Room 310
Anderson, A. P.	"	Highway Engineer.	" 410
Anderton, B. A.	"	Assistant Chemist	" 812
Arbenz, H. L.	"	Senior Highway Engineer	Field
Arthur, C. O.	"	Clerk	Room 607
Ashby, Wallace	F.A.	Barn Architect	" 302
Ball, John W.	OPR	Civil Engineer Student	Field
Barber, E. H.	"	Highway Engineer	"
Barbour, I. W.	"	Senior Highway Engineer	"
Bark, Don H.	I.I.	Irrigation Engineer	"
Barr, E. O.	OPR	Messenger Boy	Room 403
Barrows, H. H.	D.I.	Drainage Engineer	" 706
Barrows, L. D.	OPR	Junior Highway Engineer	Field
Baxter, O. G.	D.I.	Drainage Engineer	"
Beck, E. A.	I.I.	Agent	"
Beckett, S. H.	I.I.	Irrigation Engineer	"
Beebe, L. L.	OPR	Assistant Mechanical Engineer	Room 307
Bennett, A. L.	"	Clerk	" 210
Benton, L. J.	"	"	" 204
Berry, Miss V. H.	"	Lantern Slide Colorist	" 404
Betts, M. C.	F.A.	Assistant Architect in Farm Structures	" 302
Bixby, F. L.	I.I.	Irrigation Engineer	Field
Block, Edward	OPR	Photographer	Room 403
Boykin, Lester E.	"	Assistant in Road Economics	" 410
Brainard, A. S.	"	Senior Highway Engineer	" 408
Brewer, H. F.	"	Road Patrolman	Field
Brooks, W. F.	"	Senior Highway Engineer	"
Bullen, J. T.	"	" " "	"
Burrell, B. H.	"	" " "	"
Burroughs, J. E.	"	Carpenter	
Campbell, T. F.	"	Messenger Boy	Room 207
Chapman, J. H.	"	Clerk	" 208
Childs, O. W.	"	Senior Highway Engineer	" 606
Cilley, Morgan	"	Assistant Mechanical Engineer	" 307
Claytor, S. O.	"	Clerk	" 103
Cone, V. M.	I.I.	Irrigation Engineer	Field
Cookman, B. C.	OPR	Skilled Laborer	
Cooper, S. W.	D.I.	Drainage Engineer	"
Craig, Harold K.	OPR	Highway Engineer	"
Crossland, W. A.	"	Senior Highway Engineer	"

Name	Division	Position	Location
Daniels, A. M.	OPR	Assistant Mechanical Engineer	Room 304
Davies, Miss A. L.	"	Editorial Clerk	" 803
Davis, Fred A.	"	Junior Highway Engineer	Field
Diesem, H. C.	I.I.	Irrigation Engineer	"
Dodge, J. H.	OPR	Supt. of Road Construction	"
Dunn, Albert C.	"	Civil Engineer Student	"
Eason, F. G.	D.I.	Drainage Engineer	"
Eastham, R. F.	OPR	Highway Engineer	Room 408
Eberle, E. R.	"	Student Assistant	" 105
Eisenhardt, Miss S.H.	"	Clerk	" 210
Eldridge, J. H.	"	Supt. of Road Construction	Field
Eldridge, M. O.	"	Assistant in Road Economics	"
Erickson, L. W.	"	Highway Bridge Engineer	Room 602
Ervin, Guy	I.I.	Clerk	" 710
Etherton, W. A.	F.A.	Farm Architect	" 303
Ewing, P. A.	I.I.	Editorial Clerk	" 711
Fairbank, H. S.	OPR	Highway Engineer	" 506
Fauntleroy, J. D.	"	Senior Highway Engineer	Field
Fenton, Mrs. K. J.	"	Lecturer on Road Economics	Room 404
Finch, B. J.	"	Senior Highway Engineer	Field
Fortier, E. C.	I.I.	Irrigation Assistant	"
Fortier, Samuel	"	Chief of Division	Room 710
Franks, W. G.	OPR	Clerk	" 308
Francis, Miss Grace	"	Librarian	" 804
Frescoln, S. W.	D.I.	Drainage Engineer	" 801
Fuller, P. E.	I.I.	Irrigation Engineer	Field
Galbreath, Mack	OPR	Junior Highway Engineer	"
Garland, Miss M. O.	I.I.	Clerk	Room 208
Glascock, E. C.	OPR	Instrument Maker	" 102
Gordon, John H.	I.I.	Irrigation Farmer	Field
Grant, William	OPR	Laboratory Helper	Room 105
Gregory, W. B.	I.I.	Irrigation Engineer	Field
Grover, O. L.	OPR	Bridge Engineer	Room 606
Grunsky, H. W.	I.I.	Irrigation Engineer	Field
Haire, DeWitt G.	OPR	Supt. of Road Construction	"
Hall, A. G.	D.I.	Drainage Engineer	"
Hall, I. W.	D.I.	Draftsman	Room 704
Hall, L. S.	OPR	Civil Engineer Student	Field
Hall, W. N.	D.I.	Drainage Engineer	"
Hamilton, I.E.	OPR	Mechanic	Room 105
Hanford, J. G.	D.I.	Draftsman	" 704
Hansen, Miss L.	OPR	Clerk	" 607
Harden, F. G.	I.I.	Irrigation Engineer	Field
Harding, S. T.	I.I.	" "	"
Harlow, G. A.	D.I.	Clerk	Room 204
Harrison, C. T.	OPR	Supt. of Road Construction	Field
Harrison, R. H.	"	Junior Highway Engineer	"

Name	Division	Position	Location
Hart, Guy A.	D.I.	Assistant Drainage Engineer	Field
Hart, R. A.	"	Supervising Drainage Engineer	"
Haskell, C. G.	I.I.	Irrigation Engineer	"
Haswell, J. R.	D.I.	Drainage Engineer	"
Hathaway, A. S., Jr.	OPR	Junior Highway Engineer	"
Hathaway, E. O.	"	Senior Highway Engineer.	"
Hawley, A. L.	I.I.	Agent	"
Heidel, B. F.	OPR	Senior Highway Engineer	"
Heizer, D. E.	D.I.	Assistant Drainage Engineer	"
Hemphill, R. G.	I.I.	Irrigation Farmer	"
Hendley, H. W.	OPR	Model Maker	Room 104
Hewes, L. I.	"	Senior Highway Engineer	Field
Hillers, J. K., Jr.	"	Photographer	Room 403
Hoff, E. J.	I.I.	Mechanician	Field
Holland, W. D.	OPR	Clerk	Room 103
Hooper, A. L.	"	Civil Engineer Student	Field
Humphries, Walter	F.A.	Assistant in Farm Equipment	Room 302
Huntington, Frank	I.I.	Editorial Clerk	" 806
Hutchins, W. A.	I.I.	Clerk	Field
Jackson, F. H., Jr.	OPR	Laboratory Assistant	Room 105
James, E. W.	"	Chief of Maintenance	" 310
Janssen, J. W.	"	Highway Engineer	Field
Jessup, L. T.	D.I.	Assistant Drainage Engineer	"
Johnson, Elmer	OPR	Assistant Mechanical Engineer	Room 304
Johnston, Miss A. F.	I.I.	Executive Assistant	Field
Jones, L. A.	D.I.	Drainage Engineer	"
Jones, P. S.	I.I.	Assistant Irrigation Engineer	"
Joy, A. R.	OPR	Clerk	Room 507
Kamrass, Benj.	"	Aid (qualified in chemistry)	" 807
Keller, W. S.	"	Supt. of Road Construction	Field
Kelly, W. A.	D.I.	Drainage Engineer	"
Kendall, C. H.	OPR	Senior Highway Engineer	"
Kingdon, J. T.	I.I.	Irrigation Engineer	"
Knapp, G. S.	I.I.	Agent	"
Knowles, Chas.	I.I.	Messenger Boy	Room 206
Kohlmeier, I. G.	OPR	Clerk	" 208
Kruegl, Chas.	F.A.	Architectural Draftsman	" 302
Lewis, R. H.	OPR	Assistant Chemist	" 807
Long, H. A.	"	Messenger Boy	" 404
Lord, E. C. E.	"	Petrographer	" 813
Lotter, H. H.	"	Senior Highway Engineer	Field
Lynch, W. H.	"	" " "	"
Lyons, F. R.	"	Civil Engineer Student	"
Lynde, H. M.	D.I.	Drainage Engineer.	"
McCormick, E. B.	OPR	Mechanical Engineer	Room 306
McCrory, S. H.	D.I.	Chief of Division.	" 707
McLaughlin, W. W.	I.I.	Irrigation Engineer	Field
McMahon, D. J.	OPR	Student Assistant	Room 105

Name	Division	Position	Location
MacCallen, Miss L. F.	OPR	Clerk	Room 211
Mahoney, R. E.	I.I.	Agent	Field
Manville, Vasco	OPR	Clerk	Room 304
Marean, E. F.	"	"	" 204
Markley, H. E.	"	Student Assistant	" 307
Marr, J. C.	I.I.	Assistant Irrigation Engineer	Field
Marsden, R. D.	D.I.	Office Engineer	Room 708
Marshall, G. D.	OPR	Supt. of Road Construction	Field
Martin, F. R.	"	Clerk	Room 407
Massie, Miss M. L.	"	"	Room 404
Miller, D. G.	D.I.	Drainage Engineer	" 706
Miller, E. R.	OPR	Clerk	" 308
Moran, Miss M. E.	D.I.	Clerk	" 208
Moore, W.	OPR	"	" 308
Moorefield, C. H.	"	Senior Highway Engineer	Field
Morehouse, A. D.	D.I.	Drainage Engineer	"
Morris, C. C.	OPR	Highway Engineer	"
Mulford, H. P.	"	Student Assistant	Room 307
Murray, W. B.	I.I.	Clerk	Field
Nichols, W. D.	D.I.	Draftsman	Room 704
Okey, C. W.	"	Drainage Engineer	Field
O'Leary, W. J.	OPR	Clerk	Room 207
Overton, W. R.	D.I.	Drainage Engineer	Field
Page, L. W.	OPR	Director	Room 508
Palen, A. E.	"	Highway Engineer	Field
Parker, Mrs. G. D.	"	Clerk	Room 204
Parry, H. S.	"	Junior Highway Engineer	Field
Parshall, R. L.	I.I.	Agent	"
Passe, Miss Deme	OPR	Clerk	Room 507
Pauls, J. T.	"	Junior Highway Engineer	Field
Peirce, V. M.	"	Chief of Construction	Room 611
Pennybacker, J. E.	"	Chief of Road Economics	" 411
Peterson, F. L.	I.I.	Irrigation Engineer	Field
Peterson, T. C.	OPR	Civil Engineer Student	"
Petree, H. E.	"	Clerk	Room 204
Phillips, J. V.	D.I.	Drainage Engineer	Field
Porter, F. G.	OPR	Clerk	Room 103
Powell, O. N.	"	Highway Engineer	Field
Price, Miss L. C.	"	Clerk	Room 407
Pritchard, F. P.	"	Assistant Chemist	" 812
Ramser, C. E.	D.I.	Assistant Drainage Engineer	Field
Reeve, C. S.	OPR	Chemist	Room 811
Rhodes, W. H., Jr.	"	Highway Engineer	Field
Rideout, P. A.	"	Junior Highway Engineer	"
Robertson, R. D.	I.I.	Irrigation Engineer	"
Rockwell, W. L.	"	Irrigation Manager	"
Rosengarten, W. E.	OPR	Highway Engineer	"

Name	Division	Position	Location
Royall, R. E.	OPR	Junior Highway Engineer	Field
Read, J. H.	F.A.	Clerk	Room 204
Scales, G. C.	OPR	Senior Highway Engineer	Field
Schuyler, J. T.	"	" " "	"
Scobey, F. C.	I.I.	Irrigation Engineer	"
Seebode, Fred	D.I.	Messenger Boy	Room 708
Serier, Miss N. S.	I.I.	Clerk	Field
Shafer, F. F.	D.I.	Drainage Engineer	"
Sleight, R. B.	I.I.	Assistant Irrigation Engineer	"
Sloan, W. G.	D.I.	Drainage Engineer	"
Smith, E. B.	OPR	Associate Mechanical Engineer	Room 105
Solem, O. P.	"	Draftsman	" 604
Spoon, W. L.	"	Senior Highway Engineer	Field
Stanley, F. W.	I.I.	Irrigation Engineer	"
Stewart, J. T.	D.I.	Drainage Engineer	"
Sweetnam, Miss M. V.	I.I.	Clerk	Room 204
Sweetser, C. H.	OPR	Senior Highway Engineer	Field
Tait, C. E.	I.I.	Irrigation Engineer	"
Taylor, S. L.	OPR	Junior Highway Engineer	"
Teele, R. P.	I.I.	Irrigation Economist	Room 711
Thomas, C. R., Jr.	OPR	Highway Engineer	Field
Tobin, J. J.	"	Assistant in Road Economics	Room 408
Tompkins, Miss M. W.	"	Clerk	" 407
Toms, R. E.	"	Senior Highway Engineer	Field
Towles, V. E.	"	Highway Engineer	"
Trail, G. H.	"	Road Patrolman	"
Trimble, R. E.	I.I.	Agent	"
Viehmeyer, F. J.	I.I.	Assistant Irrigation Engineer	"
Voshell, J. T.	OPR	Senior Highway Engineer	Room 610
Walton, M. R.	"	Laboratory Apprentice	" 105
Warren, G. M.	D.I.	Drainage Engineer	" 708
Watts, C. F.	OPR	Messenger Boy	" 207
Weir, W. J. R.	"	Highway Engineer	Field
Weir, W. W.	D.I.	Drainage Engineer	"
Wells, Mrs. E. M.	OPR	Clerk	Room 205
Wells, H. C.	"	Supt. of Road Construction	Field
Welsh, J. S.	I.I.	Agent	"
Whitaker, J. A.	OPR	Senior Highway Engineer	"
Williams, M. B.	I.I.	Irrigation Engineer	"
Wilson, P. St. J.	OPR	Assistant Director	Room 608
Winans, L. L.	"	Junior Highway Engineer	Field
Winslow, D. H.	"	Supt. of Road Construction	"
Winsor, L. M.	I.I.	Agent	"
Withington, Miss M.	D.I.	Clerk	Room 211
Wonders, J. C.	OPR	Senior Highway Engineer	Field
Wood, Miss S. S.	"	Clerk	Room 208

Name	Division	Position	Location
Woodward, S. M.	I.I.	Irrigation Engineer	Field
Worrell, M. E.	OPR	Highway Engineer	"
Wright, Miss M. E.	D.I.	Clerk	Room 211
Wyatt, W. Carl	OPR	Chief Clerk	" 308
Yarnell, D. L.	D.I.	Drainage Engineer	" 613
Yohe, H. S.	"	Clerk	" 708

NOTE: I. I. - Office of Irrigation Investigations.
D. I. - Office of Drainage Investigations.
F. A. - Office of Farm Architecture.
OPR - Office of Public Roads.

The following names were received too late to include in the above list.

Bell, J. D.	I.I.	Agent	Field
Greenslet, E. R.	I.I.	Agent	"
Hardman, George	I.I.	Agent	"
Kunesh, J. K.	I.I.	Assistant Irrigation Engineer	"
Read, J. H.	F.A.	Clerk	Room 203
Schlick, Wm. J.	D.I.	Assistant Drainage Engineer	Field
Tallman, Aaron V.	I.I.	Agent	"
White, Asbury, Jr.	I.I.	Assistant Irrigation Engineer	"
Woods, T. B.	I.I.	Agent	"